

## **REMARKS**

Claims 1-93 are pending in the present application. The Examiner has objected to the drawings and has rejected claims 1-93.

### **I. OBJECTION TO THE DRAWINGS**

The Examiner objected to the drawings as being informal. Applicants respectfully submit herewith a formal set of drawings. It is therefore respectfully requested that the objection be withdrawn with respect to the drawings.

### **II. INFORMALITY NOTED BY APPLICANTS**

Applicants have identified an informality (i.e., a typographical error) in claim 57. In particular, Applicants have replaced “the selected frequency bands” with --the selected frequency band-- in claim 57. Clearly, “the selected frequency band” was intended in the context of the recited elements of claim 57.

### **III. REJECTION UNDER 35 U.S.C. § 103(a) WITH RESPECT TO CLAIMS 1-8, 15-22, 29, 30, 35-42 AND 48-93**

Claims 1-8, 15-22, 29, 30, 35-42 and 48-93 stand rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,366,622 B1 (“Brown”) in view of U.S. Patent No. 5,856,763 (“Reeser”). Applicants respectfully traverse the rejection.

#### **A. Claims 1-8, 15-22, 29, 30, 35-42 and 48-56**

Independent claims 1, 15, 29, 35 and 48 each recite a first resonator and a second resonator. However, the Examiner has erroneously cited the same component twice in satisfying these elements. From the cited texts of Brown, the Examiner alleges that a local oscillator (LO) is a first resonator and that a VCO 248 is a second resonator. In fact, Brown only teaches a single oscillator. For example, the VCO 248 is referenced in Brown as LO 248. See, e.g., col. 17, line 43 of Brown. Thus, the same component is effectively cited by the Examiner as being both a first resonator and a second resonator. In addition, even if the LO is interpreted by the Examiner as VCO/PLL 208 (or VCO/PLL 116 in another described embodiment), it is clear that VCO 248 is the only oscillator (i.e., the only VCO) described in VCO/PLL 208 (shown as a dashed block) as illustrated in FIG. 6 of Brown. Thus, the same oscillator would again be

effectively cited twice in meeting these elements as set forth in the claims. Accordingly, Brown does not teach or suggest a first resonator and a second resonator.

Furthermore, Brown teaches away from using multiple oscillators. Brown teaches a direct conversion receiver which has several advantages over the prior art including that “oscillators may be reduced to one”. See col. 1, lines 55-62 of Brown. Thus, Brown could not be properly combined with any document that taught the use of multiple oscillators. M.P.E.P. § 2145(X)(D)(2) clearly states that “[i]t is improper to combine references where the references teach away from their combination.” Accordingly, Brown cannot be properly combined with any documents that could possibly make up for the failings in Brown’s teachings, and thus cannot be properly combined with, for example, Reeser. Reeser teaches using two oscillators connected to a combiner circuit 10, which teaches away from Brown. See, e.g., col. 3, lines 12-15 of Reeser. Thus, since Brown explicitly teaches away from Reeser, Brown cannot be properly combined with Reeser and any rejection based on the combination of Brown and Reeser cannot be maintained.

For at least the above reasons, Applicants respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to independent claims 1, 15, 29, 35 and 48 and their respective dependent claims (i.e., claims 2-8, 16-22, 30, 36-42 and 49-56, respectively).

**B. Claims 58-75 and 77-93**

Claims 58-75 and 77-93 each recite, either explicitly or through dependence, a first resonator and a second resonator. Accordingly, the arguments made with respect to claims 1-8, 15-22, 29, 30, 35-42 and 48-56 are also made with respect to claims 58-75 and 77-93.

For at least the above reasons, Applicants respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to claims 58-75 and 77-93.

**C. Claim 57**

Neither Brown nor Reeser, individually or combined, teaches or suggests each and every element as set forth in claim 57. Claim 57 is reproduced below.

A method of tuning an oscillator having a tuning range over a tuning frequency, the tuning frequency being divided into a plurality of frequency bands, the method comprising:

- generating a first digital word;
- selecting one of the frequency bands with the first digital word;
- generating a second digital word; and

tuning the oscillator to an operating frequency within the selected frequency band with the second digital word.

Brown does not teach a method of tuning an oscillator as set forth above. Instead, in carefully reviewing the text cited by the Examiner, Brown teaches, in short, that an analog signal is received by the antenna 108, down converted by mixers 216, 218, filtered by filters 222, 224 and converted into digital data (i.e., Data\_I and Data\_Q) by analog-to-digital converters (ADCs) 226, 228. Digital data is converted into an analog signal by digital-to-analog converters (DAC) 230, 232, filtered by filters 234, 236, and up converted by mixers 238, 240 before being transmitted on antenna 108. The digital data is not used to tune an oscillator, but is merely information (e.g., communications) transmitted or received by the transceiver 100, 200. Brown does teach a digital control for the automatic gain control (AGC), but this merely controls gain and does not relate to tuning an oscillator. Brown also teaches the use of large dynamic range ADCs 226, 228 that allow for filtering to be done in the digital domain. The advantages of which are listed in col. 12, lines 46-62 of Brown. Applicants respectfully draw the attention of the Examiner to col. 12, lines 46-62 of Brown because these advantages relate to *filters* and *not oscillators* as may have been alleged by the Examiner. The filters are used, for example, to filter signals received by the antenna 108 or to filter signals destined for transmission on the antenna 108. See, e.g., FIGS. 4 and 5 of Brown. Brown also teaches a digital processing stage 300 including a decimation filter 302, a digital receive filter 306 and a digital transmit filter 308. See, e.g., col. 17, lines 32-37. However, these components also relate to filters and do not relate to tuning an oscillator. Furthermore, Brown does not teach other elements as set forth in claim 57 such as, for example, a tuning frequency of an oscillator being divided into a plurality of frequency bands, the selection of one of the frequency bands with a first digital word, and the tuning of the oscillator to an operating frequency within the selected frequency band with a second digital word. Reeser is also silent as to at least these elements as set forth in claim 57.

In addition, since Brown and Reeser cannot be properly combined as discussed above, the rejection of claim 57 based on the combination of Brown and Reeser cannot be maintained.

For at least the above reasons, Applicants respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to claim 57.

**D. Claim 76**

Since claim 76 recites many of the same or similar elements as recited in claim 57, the arguments made with respect to claim 57 are also made with respect to claim 76. For at least the above reasons, Applicants respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to claim 76.

**IV. REJECTION UNDER 35 U.S.C. § 103(a) WITH  
RESPECT TO CLAIMS 9-14, 23-28, 31-34 AND 43-47**

Claims 9-14, 23-28, 31-34 and 43-47 stand rejected under 35 U.S.C. § 103(a) as being obvious over Brown in view of Reeser and further in view of U.S. Patent No. 6,148,048 ("Kerth"). Applicants respectfully traverse the rejection.

The arguments made above with respect to claims 1-8, 15-22, 29, 30, 35-42 and 48-56 are also made with respect to claims 9-14, 23-28, 31-34 and 43-47. Accordingly, since Brown and Reeser cannot be properly combined, Brown, Reeser and Kerth cannot be properly combined.

In addition, Brown teaches away from Kerth. Brown teaches a direct-conversion transceiver (i.e., a direct down conversion receiver and a direct up conversion transmitter) and its advantages as well as teaches away from intermediate-frequency transceivers. See, e.g., col. 1, lines 47-55 of Brown. On the other hand, Kerth teaches an intermediate frequency transceiver. See, e.g., Abstract and col. 1, lines 44-59 of Kerth. Therefore, since Brown and Kerth cannot be properly combined, Brown, Reeser and Kerth cannot be properly combined and a rejection based on the combination of Brown, Reeser and Kerth cannot be maintained.

For at least the above reasons, Applicants respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to claims 9-14, 23-28, 31-34 and 43-47.

V. **CONCLUSION**

In view of at least the foregoing, it is respectfully submitted that the pending claims 1-93 are in condition for allowance. Should anything remain in order to place the present application in condition for allowance, the Examiner is kindly invited to contact the undersigned at the below-listed telephone number.

Please charge any required fees not paid herewith or credit any overpayment to the Deposit Account of McAndrews, Held & Malloy, Ltd., Account No. 13-0017.

Dated: February 24, 2004

Respectfully submitted,



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